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United States Coast Guard

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16613/16711
27 July 1998

From: Commander, Eighth Coast Guard District
To: Distribution

Subj: RECENT DISCUSSIONS REGARDING IN SERVICE INSPECTION PLANS FOR FLOATING OCS FACILITIES

1. Enclosure (1) is forwarded for your information regarding the status of current discussions between Commandant (G-MOC) and Shell Deepwater Development Systems Inc. on the issue of in service inspection plans for current and future non-self propelled floating OCS facilities. Please contact LCDR Daughdrill of my staff should you have any questions on this matter.

G. A. TETREAU
By direction

Encl: (1) Shell Deepwater Development Systems Inc. ltr of 21 July 1998

Dist: All Eighth District Gulf Region MSOs, MSU and MSDs

Shell Deepwater Development Systems Inc.

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(504)728-6161

July 21, 1998

Commandant (G-MOC)
United States Coast Guard
Washington, D.C. 20593-0001

Attn: CAPT John Schrinner

SUBJECT: MARS TLP In-Service Inspection Plan (Rev 2) (CG-W-24)
RAM-POWELL TLP In-Service Inspection Plan (Rev 0) (CG-W-23)

Reference: (1) G-MOC-2 letter 16711/RAM/POWELL and MARS TLP dated April 30, 1998
(2) G-MOC-2 letter 16711/MARS TLP dated May 20, 1997

Dear Captain Schrinner:

We have received the response per reference (1), and have addressed all of the listed items in the table below. The nature of these items lead me to believe that some discussion of Shell's experience with In-Service Inspection Plans (ISIPs) would be of benefit to your review.

Background

The concept of an In-Service Inspection Plan (ISIP) originated as a means to reconcile the US Coast Guard requirement to conduct a drydocking at two year intervals with the operational parameter of being fixed on a single location for multiple decades. Based on experience with the Conoco Joliet TLWP, there were extensive concerns in areas such as tendon flooding and tendon internal examination. The USCG (then G-MVI-4) asserted that the ISIP should satisfy the requirements for "Special Examination in Lieu of Drydock" as specified in 46 CFR 107.215, .261, and .265. ISIP requirements are cited in the draft regulations for OCS Activities in 33 CFR Subchapter N.

The jurisdiction and authority of the USCG and MMS are clarified under a Memorandum of Understanding (MOU) between the agencies. Applicability to all systems and activities is further defined by the "Table of Responsible Regulatory Agencies" originally developed by Shell, submitted for Auger, and modified for subsequent TLPs, each time with the approval of MVI-4. This table was used as the basis for the revised MOU now under review. It should be noted that MMS is the lead agency for the structural design through their Certified Verification Agent (CVA) Program, with the USCG assuming a more passive role through review of CVA reports.

Shell's submissions related to Auger and subsequent TLPs have promoted a more global view of In-Service Inspection, defining a continuous process of inspection rather than a collection of periodic inspection events. Correspondence between Shell and the USCG and MMS have established a regulatory basis for what ISIP is, and what regulations, policies, and other requirements are satisfied under the ISIP. MMS asserted that the Platform Inspection requirements of 30 CFR 250.142 were also applicable to TLPs. The ISIP was therefore written to address in one process three areas of interest:

- Requirements for USCG Drydock Inspection;
- Requirements for MMS platform inspection;
- Other areas of interest to the Structural Engineering Group to facilitate monitoring of hull system performance.

Shell's organization identifies two primary participants in ISIP implementation. The Asset is the operation organization and personnel who actually operate the facility. The Asset conducts or otherwise arranges for the inspections listed in the ISIP. The Structural Engineering Group designed the hull, tendons, foundations and any mooring systems (Auger only). Structural Engineering is the steward of information identified as "reportable findings" under the ISIP, and will serve this role for the life of the facility.

The ISIP for Auger was submitted in two parts - a governing "philosophy document" and a subsequently developed inspection manual on which the current format for Mars and Ram/Powell is based. This format, upon approval, will be applied to the Ursa TLP and subsequent projects as appropriate.

Review of Reference (1) Requirements

The ISIP was originally approved by your office per reference (2), with certain comments that were incorporated into both the Mars (Rev 2) and Ram/Powell (Rev 0) ISIP. The requirements issued under reference (1), and Shell's responses are tabulated below:

Item listed in Reference (1)		Shell Response
a.	Section 4.3 titled Inspection Procedures should reference or include the approval procedure for all changes to the ISIP	Changes to the ISIP are addressed in Section 5.3 titled Implementation of Improvements. Changes to the ISIP are initiated, tracked and approved by means the Asset's "Management of Change" process. As stated on page 21, the MOC process indicates need for Regulatory Authority Approval where appropriate. (See item b.)
b.	Section 5.3 titled Implementation of Improvements ... the OCMI must be a party to any changes, especially deletions to the ISIP	The Shell MOC process requires resubmittal of the ISIP for changes that impact areas of USCG jurisdiction. It should be noted that the ISIP also satisfies MMS structural inspection requirements and other areas of monitoring that are not based on statutory requirements of either agency. Consequently, it is envisioned that some revisions to the ISIP may not *require* USCG approval. In any case, all changes will be provided to the OCMI to assure that their copy of the ISIP is current. Should the OCMI feel that further review and approval at higher levels is warranted, the change will be submitted.

Item listed in Reference (1)		Shell Response
c.	Section 6 titled Inspection Database/Checklists does not state a means of maintaining collected data for future comparison. ...	Each Inspection Procedure (Appendices D-1 through D-8) includes procedures for collecting and recording data, that vary with the type of inspection being conducted. Sections 3.4.3 and 3.4.4 detail procedures for routine recording and inspections revealing damage, respectively. Reporting and Documentation is addressed in further detail under Section 4.4. Additionally, Section 4.2 states that the Asset Team will maintain and update the database, and Section 4.4 specifies that thickness gauging is forwarded to the Structural Engineering Group and retained for the life of the project.
d.	Section 6.2.4 titled DW Debris Accumulation Underwater ... more specific information needed to identify critical areas for debris accumulation	Critical areas have been determined by the Structural Engineering Group, and the inspection of such areas is established in the ISIP by the requirement for CPW or VW inspection procedures at those locations. Section 6.2.4 is an overview of the detail inspection procedure contained in Appendix D-2, where "Special Requirements" specifies the removal of debris from sea chests and fire water intakes. Further, the conduct of CPW and VW requires the removal of debris and marine growth as part of those inspection procedures.
e.	Section 6.2.12 titled SVRR Seachest Valve Remove and Replace ... Description of work is ambiguous and unclear. Additionally, the standards referenced in the plan to determine pass/fail must be formally identified and recognized by industry or fall within the valve manufacturer's tolerances.	Section 6.2.12 is an overview of the detail inspection procedure contained in Appendix D-8, which clearly gives specific description of the steps involved in valve removal and replacement. The issue of pass/fail is not relevant to this procedure, as its purpose is the installation of a new or reconditioned valve, and not evaluation of valve integrity. Pass/fail criteria is addressed under Appendix D-7, Seachest Valve Leak Test. Such criteria are solely manufacturer or valve-type dependent and are not included in the ISIP.
f.	Section 7.4 titled Examples i. ... Case 1 references Stability Calculations found in Appendix A-3 that are not a part of the ISIP.	The text actually reads "... Stability Calculations referenced in Appendix A-3." Appendix A-3 is a list of relevant documents *referenced,* not *included,* in the ISIP. We see no problem in this example
	ii. The repairs in the case need to be documented as temporary.	Documentation of the temporary or permanent nature of repairs in the examples given is not relevant. Section 7.1 clearly states that the USCG and MMS will be kept apprised of damage/repair situations as required by regulation.
	iii. Stability Calculations are to be submitted to the MSC for approval.	The Stability Calculations were originally submitted to the Marine Safety Center 10/5/94 and approved 7/14/95. The latest revision (Rev 3) was approved 7/3/96.

Item listed in Reference (1)		Shell Response
g.	Appendix D7 titled Seachest Valve Leak Test must include provisions to plug and remove the sea valve for visual inspection by the Marine Inspector on an alternating schedule such that each valve is pulled for inspection once every 5 years.	The requirement to remove sea valves for inspection has been absent from regulation since changes the USCG implemented in the 1980s that established Underwater Surveys, Internal Structural, and Drydock examinations as distinct components of hull examination. The objective of sea valve examination is to assure valve integrity. It should not be necessary to remove for visual inspection any valve that can be examined by other means. Discussions with the reviewer led Shell to believe that these procedures would be evaluated for equivalency under 46 CFR 108.105. Further clarification of this position is provided below.

Equivalency under 46 CFR 108.105

The development and submittal of this alternative to routine removal of sea valves for visual inspection is based on discussions with LCDR Kantz and practices generally accepted in other industries, as well as practices historically accepted by OCMIs in their review and conduct of Special Examinations in Lieu of Drydock for MODUs. Classification societies such as ABS have accepted alternative intervals and inspection methods for classed floating production systems that remain on site for life of field development (20 or more years). The whole concept of In-Service Inspection is in practice an application of "equivalency" established by G-MVI-4 that acknowledges the substantively "fixed" nature of floating OCS facilities as compared to MODUs. This concept is incorporated into the new regulations governing OCS Activities in 33 CFR Subchapter N as an alternative to drydocking for floating OCS facilities.

USCG regulations do not require sea valve removal for MODUs (from which TLP requirements are drawn). The Seachest Valve Leak Test as described in the ISIP actually provides a higher level of safety than the visual inspection required by reference (1). A valve with no visually apparent defects could conceivably fail the leak test. Similarly, valves displaying normal wear and marine growth may in fact be perfectly functional. Consequently, the ISIP proposal to conduct leak testing on regular intervals, with removal and replacement when a valve fails the test, provides a higher level of safety than that required by regulation.

Absent a regulatory requirement to remove sea valves, other USCG guidance is also non-specific in this area. COMDINST M16000.7, Marine Safety Manual - Material Inspection, in Chapter 8 directs the reader to NVIC 12-69 *Special Examination In Lieu of Drydock*, which specifies that through hull fittings should receive the same examination as would occur at drydocking, which again by regulation specifies no required removal or criteria for examination. Chapter 35, in addressing Floating OCS facilities, indicates that requirements will be established by review of G-MVI. In numerous correspondences from G-MVI-4 concerning In-Service Inspection Plans, it has been clear that the ISIP for floating OCS facilities *replaces* both the requirements for Drydocking and Special Examination in Lieu of Drydock while a facility remains on location. This is also clearly stated in the draft regulations in 33 CFR Subchapter N. Guidance for the development and content of the ISIP has never addressed a requirement for removal of sea valves.

Since the ISIP as written prescribes a level of inspection that is in excess of that required by regulation or policy, we question the need of an "equivalency" determination. It is requested that the proposed Seachest Valve Leak Test, coupled with Sea valve Removal and Replacement upon failure of the leak test, be recognized as meeting the intention and letter of applicable regulations.

ISIP in Practice

The Auger TLP has been operating under its ISIP since deployment in 1993. Mars and Ram Powell TLPs have been utilizing the ISIP since their deployments in 1995 and 1997, respectively. Mars is scheduled for an audit/inspection under the ISIP on August 3, 1998 by OCMI Morgan City. Sea valve Leak Tests will be conducted in conjunction with this audit. We believe witnessing this procedure will afford you an opportunity to evaluate this matter first hand. You are invited and encouraged to attend this inspection, or to seek appropriate feedback from the attending inspector(s) in your consideration of this matter.

Process Improvement

The ISIP is the only document prepared in conjunction with certification of a floating OCS facility that is not approved by the OCMI or Marine Safety Center. Under the procedures for appeal contained in 46 CFR 1.03, there is no provision for appeal of a decision rendered by Commandant, implying that all plan or document review is conducted by the OCMI or the MSC. We would appreciate your clarifying the process for appeal of requirements issued by Commandant staff.

Consistent with the submittal requirements in the new (draft) 33 CFR Subchapter N, we believe that review of the ISIP might be more effectively conducted by the Marine Safety Center in conjunction with the OCMI of the zone in which the facility will be located, in a process similar to that for the Marine Operations Manual. These units have access to and familiarity with the facility design and operations by means of the numerous other reviews or inspections that they conduct.

In support of OCMI involvement in the review process, we have encountered a certain sense of mystery regarding ISIPs among the local OCMI staffs, resulting in what we see as misapplication of 108.265 to these facilities. Participation of the OCMI in review and approval would improve the understanding on the part of the USCG units that are responsible for the implementation of the ISIP.

If you are unable to approve the subject ISIPs based on the responses contained in this letter, and any dialog or feedback received from the August 3 inspection, we would appreciate an opportunity to meet and review any outstanding issues in person. Should you have questions or require additional information, or to arrange your attendance during the August 3 inspection, please contact me at (504) 728-6393 or Mr. Peter Hill at (504) 728-6664.

Yours very truly,

R B Meyer

Richard B. Meyer, P.E.
Deepwater Certification Coordinator
Shell Offshore Inc.
Regulatory and Public Affairs
As Agent for Shell Deepwater Development Systems Inc.

Enclosures

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16711/RAM/POWELL
and MARS TLPs

APR 30 1998

Mr. John F. Moore
TLP Certification Coordinator
Shell Offshore Inc.
One Shell Square
P.O. Box 61933
New Orleans, LA 70161-1933

Dear Mr. Moore:

Ref (1)

This is in response to your letter of July 18, 1997, requesting approval of the *Mars and Ram/Powell TLP In Service Inspection Plans (ISIP)*. The following items shall be addressed to the satisfaction of this office prior to approval of the ISIPs:

a. Section 4.3 -- titled INSPECTION PROCEDURES should reference or include the approval procedure for all changes to the ISIP.

b. Section 5.3 – titled IMPLEMENTATION OF IMPROVEMENTS the Coast Guard Officer in-Charge, Marine Inspection must be a party to any changes, especially deletions to the ISIP.

c. Section 6 – titled INSPECTION DATABASE/CHECKLISTS does not state a means of maintaining collected data for future comparison. In particular gauging results and internal coating failure, this data is vital for tracking rate of metal wastage or coating effectiveness.

d. Section 6.2.4 – titled DW - Debris Accumulation Underwater details the procedures for debris accumulation but more specific information is required to identify critical areas for debris accumulation.

e. Section 6.2.12 – titled SVRR - Seachest Valve Remove and Replace discusses removal/replacement of sea valves failing a leak test. The description of the scope of work is ambiguous and unclear. Additionally, the standard(s) referenced in the plan used to determine pass/fail of the valve must be formally identified and recognized by industry or fall within the valve manufacturer's tolerances.

f. Section 7.4 – titled EXAMPLES provides damage repair scenarios for platform personnel to follow in the event of hull damage. There are several problems noted in Case 1, Damaged Hull Shell Plating Not Affecting Local Structural Integrity:

   i. Case 1 references stability calculations found in Appendix A-3 which is not a part of this ISIP.

SUBJ: MARS AND RAM POWELL TLP IN-SERVICE INSPECTION PLANS

ii. Additionally the type of repairs mentioned in case reference need to be documented as temporary.

iii. The stability calculations are to be submitted to the Coast Guard Marine Safety Center for approval.

g. Appendix D7 – titled SEACHEST VALVE LEAK TEST must include provisions to plug and remove the sea valve for visual inspection by the Marine Inspector on an alternating schedule such that each valve is pulled for inspection once every 5 years.

I apologize for the delay in responding to your request. However, I can assure you a prompt response upon receipt of Shell's revisions to the ISIP.

Sincerely,

S.L. KANTZ
Lieutenant Commander, U.S. Coast Guard
Chief, Ports and Facilities Compliance Division
By direction of the Commandant

Copy: CCGD8(m)
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16711/MARS TLP

MAY 20 1997

Mr. John F. Moore
TLP Certification Coordinator
Shell Offshore Inc.
One Shell Square
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New Orleans, LA 70161-1933

Ref (2)

Dear Mr. Moore:

This is in response to your letter of March 21, 1996, requesting approval of the *Mars TLP In Service Inspection Plan (ISIP)*. As discussed with Mr. Pete Hill of your staff and Lieutenant Commander Stephen Kantz, the MARS ISIP is approved with the following comments:

a. Section 1.0- This approval is specifically for the *MARS* OCS facility. Approval for future TLPs will require the submission and review of individual ISIPs. However, the scope, format and procedures used in the *MARS ISIP* will be recognized as acceptable in the review of these future TLPs to the extent they are applicable.

b. Section 3.1 - The ISIP should clearly state that all diving operations conducted from or in association with the facility must comply with the Commercial Diving regulations of 46 CFR Subpart B of Part 197.

c. Section 3.2.2 - The specific information required by 46 CFR 107.265 (b) should be forwarded to the Officer in Charge, Marine Inspection (OCMI) in advance of underwater inspections. The extent of underwater cleaning and non-destructive testing during any particular inspection will be to the satisfaction of the OCMI.

d. Section 3.4.4 - The notification requirements of 33 CFR 146.30 and 46 CFR 109 Subpart D should be referenced.

e. Appendix D - The inspection procedures in appendix D reflect "AUGER" vice "MARS". While the procedures themselves may be identical, the heading on these procedures are misleading as written.

f. The plan must provide specific procedures and safeguards for the blanking off of sea chests

and removal of sea valves for inspection. These may be done on an alternating schedule provided each valve is opened and pulled for inspection once every five years.

g. The gauging data must be maintained in a cumulative record. Without a cumulative evaluation, indications relative to environmental effects or systematic deterioration could go unnoticed.

We apologize for the delay in responding to your request. As discussed, a resubmission of the *MARS ISIP* incorporating clarification of the above issues will result in Coast Guard approval without comments.

Sincerely,

G. D. POWERS
Commander, U.S. Coast Guard
Chief, Vessel Compliance Division
By direction of the Commandant

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Shell Deepwater Development Systems Inc. P. O. Box 51510 New Orleans, LA 70151-1510 D. A. Huete J. J. Mello J. A. Sutton	X
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Shell Deepwater Development Inc. P.O. Box 576 Houston, TX 77001-0576 R. D. Larrabee	X
Mars TLP c/o Venice Terminal P.O. Box AD Venice, LA 70091 T. E. Harrison/R. Coffey	X
Ram-Powell TLP c/o Venice Terminal P.O. Box AD Venice, LA 70091 Roy Daigle/Tom Hammond	X
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